Global **Malaria** Programme

Fifth meeting of the Vector Control Technical Expert Group (VCTEG)

Meeting report, 14–16 November 2017, Geneva, Switzerland

World Health Organization

Suggested citation. Fifth meeting of the Vector Control Technical Expert Group (VCTEG). Geneva: World Health Organization; 2017. Licence: CC BY-NC-SA 3.0 IGO.

Cataloguing-in-Publication (CIP) data. CIP data are available at http://apps.who.int/iris.

This publication contains the report of the fourth meeting of Vector Control Technical Expert Group and does not necessarily represent the decisions or policies of WHO.

WHO/HTM/GMP/2017.25

CONTENTS

SUMMARY

On 14–16 November 2017, the 5th meeting of the Vector Control Technical Expert Group (VCTEG) of the WHO Global Malaria Programme (GMP) convened to review updates and progress on issues related to the implementation of malaria vector control, including programme management, and to provide advice to GMP with respect to related areas of work. The key outcomes of the meeting were as follows:

(1) Global status on insecticide resistance report: The TEG welcomed the draft report and recommended that WHO conduct additional analyses, such as for individual vector species and geographies. The report should also be revised to provide clarity on its scope and objectives, as well as to better align with standard terminology. The TEG recommended that WHO publish the report once finalized and plan for periodic status updates.

(2) Malaria Threats Map: The beta application was well received, and the TEG encouraged WHO to continue to plan for Phase II development on the basis of user feedback. The TEG indicated that it should be made clear that the Malaria Threats Map is an informational tool and is not designed to be a decision support system. The group also recommended that the feasibility of compatibility with mobile devices be explored. The TEG noted plans to improve on insecticide resistance data collation through a broader GMP effort to harmonize and decentralize data management by WHO.

(3) Decision framework for insecticide resistance management (IRM): The TEG recommended updates to the draft flowcharts and table provided and the addition of narrative in order to guide the identification of malaria vector control intervention options using available insecticide resistance information. It was noted that this should include currently available tools but also consider future tools, with subsequent updates as needed. A revised version of the draft framework will be circulated to the TEG for further input, tested based on scenarios in selected countries and refined as required.

(4) Consolidated WHO guideline for malaria vector control: At its 5th meeting, the TEG served as the Guideline Development Group tasked with developing evidence-based guidance in the form of GMP's consolidated guideline for malaria vector control. Two days of closed sessions were dedicated to reviewing the evidence summaries provided by the Cochrane Infectious Diseases Group. A draft guideline document that included the recommendations arrived at during the TEG meeting was circulated to TEG members and the WHO Secretariat. Feedback on content was requested by 15 December 2017. The TEG recommended that WHO/GMP engage with the Guidelines Review Committee in order to find ways in which the large body of evidence on vector control that does not meet the criteria set by the Cochrane Group can be explicitly included in the formulation of the guideline. The TEG reiterated that it is imperative for the guideline to adequately reflect gender, human rights and equity issues.

(5) Emerging issues: The TEG suggested a number of new or expanded areas of work for GMP. These included the development of guidance on vector control interventions and associated monitoring and evaluation requirements for elimination and prevention of reintroduction settings; prioritization/ stratification of vector control interventions considering new (potentially more costly) tools and/or in the context of challenges such as constrained resources, insecticide resistance and residual transmission; targeting of vector control tools to high-risk groups defined on the basis of human and/or vector behaviour; validation of 5x and 10x intensity concentrations for estimating vector resistance; and validity of synergist bioassays as a proxy for metabolic resistance.

BACKGROUND

The Vector Control Technical Expert Group (VCTEG) was established by the WHO Global Malaria Programme (WHO/GMP) in 2013 to:

- Formulate and propose to WHO/GMP evidence-based norms, standards and guidance for malaria vector control;
- Review evidence and make recommendations to WHO/GMP on the predicted effectiveness and appropriate mix of vector control interventions for particular situations, including the adoption of new forms of vector control following recognition of "proof of principle" by the Vector Control Advisory Group (VCAG);
- Address policy issues related to building capacity for entomological monitoring and optimization of vector control; identify gaps in evidence and suggest specific areas of priority research to improve malaria vector control; and
- Provide WHO with key strategic advice on malaria vector control.

OVERVIEW OF THE MEETING

WHO/GMP convened the 5th VCTEG meeting in Geneva, Switzerland, from 14 to 16 November 2017. During the open session on the first day, 13 VCTEG members, five temporary advisors, five observers and the WHO Secretariat discussed key issues related to the implementation of malaria vector control. Conclusions and recommendations were agreed upon during the closed sessions on the second and third day of the meeting.

The WHO/GMP Director, Pedro L. Alonso, opened the meeting by acknowledging the contributions of the VCTEG to the work of WHO/GMP and singled out the importance of the vector control guideline as a single source for comprehensive recommendation and guidance on malaria control interventions. The Coordinator of the WHO/GMP Entomology and Vector Control unit, Jan Kolaczinski, then reminded the group of their roles and responsibilities, which include signing a confidentiality agreement and declaration of interests; providing WHO/GMP with high-quality, well-considered, evidence-informed advice and recommendations; participating actively throughout the year; participating in other WHO meetings including Expert Review Groups, upon request from WHO; and conducting desk-based review of documents. The meeting objectives were then outlined as below, with Dr John Gimnig appointed as the new VCTEG chair. Three new VCTEG members were welcomed to the group: Dr Constance Bart-Plange, Dr Eunice Misiani and Dr Marcy Erskine.

Meeting objectives:

- To provide a brief update on recent key GMP initiatives in the areas of entomology and vector control;
- To present an update on the global status of insecticide resistance;
- To review and provide input for refining a beta version of an online mapping tool that includes data on vector insecticide resistance;
- To discuss and provide input on a decision framework for IRM;
- To discuss and provide input on the consolidated WHO guideline for malaria vector control.

DECLARATION OF INTERESTS

All of the invited experts completed a *Declaration of interests for WHO experts* prior to the meeting, to be assessed by the WHO Secretariat. The following interests were declared:

Dr Marc Coosemans (VCTEG member) is employed by the Institute of Tropical Medicine of Antwerp, Belgium, and received a grant from the Bill and Melinda Gates Foundation for studying the impact of repellents for malaria prevention in Cambodia, as well as repellents for the study from SC Johnson. This work was conducted from 2012–2014. He has also received six grants for the evaluation of public health pesticides from WHOPES since 2007, some of which will run through 2018.

Dr Jeffrey Hii (VCTEG member) is employed by the Malaria Consortium and has received remuneration for consulting services from WHO and from the Ministry of Health, East Timor, for work conducted in 2017. He has held a grant from SC Johnson, which ceased in 2017, to evaluate transfluthrin, and received financial support from Bayer Crop Science to attend the 4th Bayer Vector Control Expert Meeting in 2017. He holds an ongoing WHO/TDR research grant, which focused on studying magnitude and identifying causes of residual transmission in Thailand and Viet Nam (completed), and will be used to study the impact of socio-ecological systems and resilience (SESR)-based strategies on dengue vector control in schools and neighbouring household communities in Cambodia (awaiting ethical approval).

John Silver (temporary advisor) is a freelance consultant who is married to Melanie Renshaw, who was VCTEG Chair from 2013 to 2016.

Dr Steve Lindsay (temporary advisor) is employed by Durham University and received an honorarium in 2017 for giving a presentation on the importance of clinical trials for measuring the efficacy of vector control products from NIAID (the National Institute for Allergy and Infectious Diseases, USA). He has also received free bednets from Sumitomo Chemical for an ongoing trial in Burkina Faso.

The WHO Secretariat assessed the interests declared by the experts. The declared interests were not found to be directly related to the topics under discussion at the meeting. WHO is of the opinion that these declarations did not constitute conflicts of interest and that the considered experts could participate in the meeting, subject to the public disclosure of their interests.

ITEMS REVIEWED AND ARISING RECOMMENDATIONS

Update on recent GMP initiatives on malaria entomology and vector control

Jan Kolaczinski, Coordinator of the Entomology and Vector Control Unit, provided an update on relevant recent initiatives:

- **Framework for a national insecticide resistance monitoring and management plan for malaria vectors** (http://www.who.int/malaria/publications/atoz/9789241512138/): The framework was released in March 2017 in English; the Spanish and French versions were released in June and July 2017, respectively. Two webinars were held in English and Spanish in July 2017. Other supporting documents released in July 2017 include key points, questions and answers, and a presentation (all in English, French and Spanish).
- **Global vector control response 2017–2030 (GVCR)** (http://www.who.int/vector-control/publications/global-control-response/)**:** The draft document and resolution were discussed at the 70th World Health Assembly in May 2017 and positive interventions were

made by or on behalf of countries from across all WHO regions. The resolution (WHA70.16: an integrated approach for the control of vector-borne diseases) was adopted without amendment. The final GVCR was released in October 2017 in English; the Arabic, Chinese, French, Spanish and Russian versions are available in draft format, with the final versions pending. Other supporting documents released include the Lancet commentary (June 2017), an advocacy brochure (September 2017), online questions and answers (September 2017) and a thematic webpage that includes disease outbreak notifications (August 2017) [www.who.int/vector-control].

- **Framework for a national vector control needs assessment** (http://www.who.int/vector-control/publications/framework-VCNA/)**:** The document was released in November 2017 in English. Updates are anticipated, drawing on experience from operational use and from GVCR implementation and progress. Translations will be considered following revision.
- **Malaria Threats Map** (http://www.who.int/malaria/maps/threats/): The online mapping application was demonstrated during the Malaria Policy Advisory Committee (MPAC) meeting in October 2017 and released publically at the end of that month on the WHO/GMP website. The Malaria Threats Map provides a global overview of malaria vector insecticide resistance, *P. falciparum hrp2*/3 gene deletions, and results from therapeutic efficacy studies and molecular marker studies. Users can generate tailored maps based on selected criteria. The beta application is available online in English, French and Spanish. Feedback is requested on potential functionality/data issues or general suggestions for improvement, and can be delivered through an online form available in English, French and Spanish. Consultations to define specifications for Phase II development are ongoing or planned.
- **Malaria surveillance manual** (under development)**:** The malaria surveillance manual has been updated to now include a chapter (5) on entomological surveillance and response. This chapter includes a description of entomological indicators for the monitoring and evaluation of vector control interventions, and considerations for entomological surveillance by transmission setting – burden reduction, elimination and prevention of reintroduction where malaria has been eliminated. Its general emphasis is on evidence-based decision making in vector control.
- **Policy and process for vector control product evaluation** (http://www.who.int/malaria/publications/atoz/evaluation-process-vector-control-products/)**:** The WHO process for evaluating vector control products was revised in early 2017 to better meet the needs of countries endemic for vector-borne diseases. Under the revised process, the evaluation pathway to be followed is determined by whether or not a product is part of a product class with an existing WHO policy recommendation. Products covered by an existing WHO policy recommendation will follow the prequalification pathway, while all new tools, technologies and approaches will follow the new intervention pathway. For products not covered by an existing WHO policy recommendation, the VCAG will validate whether the intervention under assessment has public health value. Once public health value has been demonstrated, WHO will issue a policy recommendation.
- **Evaluation of new vector control products** (http://www.who.int/neglected_diseases/vector_ecology/resources/WHO_HTM_NTD_VEM_2017.05/): The VCAG serves as an advisory body to WHO on new tools, technologies and approaches for the prevention and control of malaria and other vector-borne diseases. The VCAG advises innovators on data requirements for the evaluation of new tools, assesses this evidence once it is generated and provides recommendations to WHO on the public health value of new tools. In 2017, the VCAG convened on 26–28 April (6th meeting) and 24–26 October (7th meeting). The VCAG manager is currently under recruitment.

- **Epidemiological trials for vector control products** (http://www.who.int/neglected_diseases/vector_ecology/resources/WHO_HTM_NTD_VEM_2017.03/en/) The WHO manual on *How to design vector control efficacy trials: guidance on Phase III vector control field trial design* was provided by VCAG. This document includes recommendations on the hierarchy of trial designs, and considerations for randomization, endpoints, and measures of cost-effectiveness.
- **Comparative effectiveness evidence review group (ERG)** (http://www.who.int/malaria/publications/atoz/requirements-vector-control-products/): This ERG was tasked with reviewing summarized laboratory and field trial data for selected new vector control products as case studies with which to develop both product-specific policy recommendations and general recommendations on the evaluation process for new vector control tools. The group recommended that the existing WHO policy for indoor residual spraying (IRS) be extended to include SumiShield® 50WG. The ERG also provided general recommendations on how to access new products that share a similar mode of action (MoA) and entomological effect as products in a class covered by WHO policy; the need to modify or refine existing guidance for the evaluation of long-lasting insecticidal net (LLIN) and IRS products; the generation of further evidence to inform thresholds of entomological efficacy; the need to revisit the public health value of space spray products; and product design for managing insecticide resistance.
- **Pyrethroid-PBO net ERG** (http://www.who.int/malaria/publications/atoz/use-of-pbo-treated-llins/)**:** WHO revised the recommendation on the deployment of pyrethroid-PBO nets following an ERG review of epidemiological data and feedback from MPAC. This recommendation now specifies that national malaria control programmes and their partners should consider the deployment of pyrethroid-PBO nets in areas where the main malaria vector(s) have pyrethroid resistance that is: a) confirmed, b) of intermediate level, and c) conferred (at least in part) by a monooxygenase-based resistance mechanism, as determined by standard procedures.[1]
- **Recommendations for universal coverage with LLINs** (http://www.who.int/malaria/publications/atoz/who_recommendation_coverage_llin/)**:** The recommendations for achieving universal coverage with LLINs for malaria control were updated following the March 2017 VCTEG meeting in order to reflect new findings on the effect of user preferences and ITN use. The document was presented at the MPAC meeting in October 2017, and inputs received at the meeting were incorporated prior to publication.
- **World Malaria Day 2017** (http://www.who.int/campaigns/malaria-day/2017/)**:** Malaria prevention featured heavily in the advocacy and communications materials formulated for World Malaria Day 2017.